# Homework: Math for Developers

This document defines homework assignments from the [“C# Basics“ Course @ Software University](http://softuni.bg/courses/csharp-basics/). Please submit as homework a single txt/doc/docx file holding the answers of all below described problems.

## Some Primes

Find the 24th, 101st and 251st prime number.

**Problem 1 Solution:**  
24th – 89

101st -547

251st-1597

Resources: https://bg.wikipedia.org/wiki/%D0%A1%D0%BF%D0%B8%D1%81%D1%8A%D0%BA\_%D0%BD%D0%B0\_%D0%BF%D1%8A%D1%80%D0%B2%D0%B8%D1%82%D0%B5\_1000\_%D0%BF%D1%80%D0%BE%D1%81%D1%82%D0%B8\_%D1%87%D0%B8%D1%81%D0%BB%D0%B0

## Some Fibonacci Primes

Check if the 24th, 101st and 251st prime numbers are part of the base Fibonacci number set. What is their position?

**Problem 2 Solution:**

24th – Is a Fabonacci numer – 11 place in Fabonacci’s table.

101st -547 – Is not a Fabonacci numer.

251st-1597 – Is a Fabonacci number – 17 place in Fabonacci’s table.

Resources:

http://www.miniwebtool.com/first-n-prime-numbers/?number=300

## Some Factorials

Find 100!, 171! and 250! Give all digits.

**Problem 3 Solution:**

**100!** =1\*3\*4…98\*99\*100= 9.332621544 E+157 = =93326215443944152681699238856266700490715968264381621468592963895217599993229915608941463976156518286253697920827223758251185210916864000000000000000000000000

**171!** =1\*3\*4…169\*170\*171 = 1.24101807 E+309 = 1241018070217667823424840524103103992616605577501693185388951803611996075221691752992751978120487585576464959501670387052809889858690710767331242032218484364310473577889968548278290754541561964852153468318044293239598173696899657235903947616152278558180061176365108428800000000000000000000000000000000000000000

**250!** = 1\*3\*4…248\*249\*250=3.23285626 E+492 = 3232856260909107732320814552024368470994843717673780666747942427112823747555111209488817915371028199450928507353189432926730931712808990822791030279071281921676527240189264733218041186261006832925365133678939089569935713530175040513178760077247933065402339006164825552248819436572586057399222641254832982204849137721776650641276858807153128978777672951913990844377478702589172973255150283241787320658188482062478582659808848825548800000000000000000000000000000000000000000000000000000000000000  
  
**Resources:**  http://www.calculatorsoup.com/calculators/discretemathematics/factorials.php

## Calculate Hypotenuse

You are given three right angled triangles. Find the length of their hypotenuses.

1. Catheti: 3 and 4
2. Catheti: 10 and 12
3. Catheti 100 and 250

**Problem 4 Solution:**

1. Catheri: 3 and 4 – The length of the hypotenuse is 5
2. Catheri: 10 and 12 – The length of the hypotenuse is 15.62
3. Catheri: 100 and 250 – The length of the hypotenuse is 269.26

## Numeral System Conversions

Convert 1234d to binary and hexadecimal numeral systems.

Convert 1100101b to decimal and hexadecimal numeral systems.

Convert ABChex to decimal and binary numeral systems.

**Problem 5 Solution:**

1234d = 10011010010b = 4D2hex

1100101b = 65hex = 101d

ABChex = 2748d = 101010111100b

## Least Common Multiple

Find LCM(1234, 3456).

**Problem 6 Solution:**

**LCM is 2132352**